

# PATENT ABSTRACTS OF JAPAN

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## (54) INFORMATION COMMUNICATION SYSTEM AND METHOD AND INFORMATION COMMUNICATION DEVICE AND METHOD

### (57)Abstract:

PROBLEM TO BE SOLVED: To easily transfer the composition data from an audio server to a portable audio data reproducing device.

SOLUTION: A list editing picture 310 is displayed on the display part of the audio server stored with the massive music data. The music data stored in the server are list displayed in an area 300. The data transferred from the server to the portable recording/reproducing device are list displayed in the area 301. With a button 302 the data selected in the area 300 are added to the list of the area 301. With the button 303 the data selected in the area 301 are struck out from the list. By operating a prescribed transfer button the data displayed in the area 301 are transferred collectively to the portable device. Even when the portable device isn't connected to the server the transfer data are edited. The data are controlled by the list and plural data are transferred collectively.

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## CLAIMS

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### [Claim(s)]

[Claim 1] A telecommunications system which is provided with the following and characterized by transmitting data memorized by the 2nd storage of the above via the above-mentioned means of communication to the 1st storage of the above based on the above-mentioned management information.

The 1st apparatus whose built-in or insertion and detachment of the 1st storage is enabled at least.

The 2nd storage with which management information of data which is provided with the 2nd apparatus that receives data from the 1st apparatus of the above at

least is made possible [ built-in or insertion and detachment ] for the 2nd apparatus of the above and is memorized by the 1st storage of the above is memorized.

A means of communication which communicates data between the 1st apparatus of the above at least.

It is an editing means which can always be edited about the above-mentioned management information memorized beforehand.

[Claim 2] A telecommunications system always being able to edit the above-mentioned management information in the telecommunications system according to claim 1 even if the above-mentioned editing means cannot be communicated [ above-mentioned ] between the 1st apparatus of the above and the 2nd apparatus of the above.

[Claim 3] A telecommunications system controlling in the telecommunications system according to claim 1 so that identification information of the 1st apparatus of the above is received by the 2nd apparatus of the above and performing the above-mentioned transmission by the above-mentioned management information according to the above-mentioned identification information.

[Claim 4] In the telecommunications system according to claim 3 the 2nd apparatus of the above A telecommunications system characterized by reception permission of the above-mentioned transmission by the above-mentioned management information being carried out by the above-mentioned control means when an identification information list of other apparatus which can deliver and receive data is memorized and identification information of the 1st apparatus of the above is contained in the above-mentioned identification information list.

[Claim 5] The telecommunications system comprising according to claim 1:  
The 1st window as which for the 2nd apparatus of the above data identification information based on management information of the above-mentioned data transmitted is displayed on the 1st storage of the above.

The 2nd window as which data identification information based on management information of data memorized by the 2nd storage of the above is displayed.

[Claim 6] A telecommunications system wherein the above-mentioned editing means edits in the telecommunications system according to claim 5 by changing presenting of data identification information displayed on the 1st and 2nd windows of the above.

[Claim 7] Management information of data memorized in the telecommunications system according to claim 1 by the 1st storage of the above A telecommunications system having further a comparison means to compare management information of data memorized by the 1st storage of the above memorized by the 2nd storage of the above and transmitting and receiving data between the 1st apparatus of the above and the 2nd apparatus of the above according to an output of the above-mentioned comparison means.

[Claim 8] An information-and-telecommunications method which is provided with

the following and characterized by transmitting data memorized by the 2nd storage of the above by a step of the above-mentioned communication to the 1st storage of the above based on the above-mentioned management information.

The 1st apparatus whose built-in or insertion and detachment of the 1st storage is enabled at least.

Built-in or insertion and detachment are enabled and it has the 2nd storage with which management information of data memorized by the 1st storage is memorized. A step of communication which is the information-and-telecommunications method which communicates information between the 1st apparatus of the above and the 2nd apparatus at least and communicates data between the 1st apparatus of the above at least.

It is a step of edit which can always be edited about the above-mentioned management information memorized beforehand.

[Claim 9] An information-and-telecommunications device which is provided with the following and characterized by transmitting data memorized by the 2nd storage of the above via the above-mentioned means of communication to the 1st storage of the above based on the above-mentioned management information and which receives data from apparatus by which built-in or insertion and detachment of the 1st storage are enabled at least.

The 2nd storage with which management information of data which built-in or insertion and detachment of are enabled and is memorized by the 1st storage is memorized.

A means of communication which communicates data between apparatus whose built-in or insertion and detachment of the 1st storage of the above is enabled at least.

It is an editing means which can always be edited about the above-mentioned management information memorized beforehand.

[Claim 10] An information-and-telecommunications device always being able to edit the above-mentioned management information even if the above-mentioned communication is impossible in the information-and-telecommunications device according to claim 9 between apparatus made possible [ built-in or insertion and detachment of the 1st storage of the above ] for the above-mentioned editing means.

[Claim 11] An information-and-telecommunications device controlling so that identification information of apparatus by which built-in or insertion and detachment of the 1st storage of the above are enabled is received in the information-and-telecommunications device according to claim 9 and performing the above-mentioned transmission by the above-mentioned management information according to the above-mentioned identification information.

[Claim 12] When an identification information list of other apparatus which can deliver and receive data is memorized and identification information of apparatus by which built-in or insertion and detachment of the 1st storage of the above are

enabled is contained in the above-mentioned identification information list in the information-and-telecommunications device according to claim 11 An information-and-telecommunications device wherein reception permission of the above-mentioned transmission by the above-mentioned management information is carried out by the above-mentioned control means.

[Claim 13] The information-and-telecommunications device comprising according to claim 9:

The 1st window as which data identification information based on management information of the above-mentioned data transmitted is displayed on the 1st storage of the above.

The 2nd window as which data identification information based on management information of data memorized by the 2nd storage of the above is displayed.

[Claim 14] An information-and-telecommunications device wherein the above-mentioned editing means edits in the information-and-telecommunications device according to claim 13 by changing presenting of data identification information displayed on the 1st and 2nd windows of the above.

[Claim 15] Management information of data memorized in the information-and-telecommunications device according to claim 9 by the 1st storage of the above An information-and-telecommunications device transmitting and receiving data between apparatus which has further a comparison means to compare management information of data memorized by the 1st storage of the above memorized by the 2nd storage of the above and by which built-in or insertion and detachment of the 1st storage of the above are enabled according to an output of the above-mentioned comparison means.

[Claim 16] An information-and-telecommunications method which is provided with the following and characterized by transmitting data memorized by the 2nd storage of the above by a step of the above-mentioned communication to the 1st storage of the above based on the above-mentioned management information of receiving data from apparatus by which built-in or insertion and detachment of the 1st storage are enabled at least.

A step which memorizes management information of data memorized by the 1st storage to the 2nd storage built-in or whose insertion and detachment are enabled.

A step of communication which communicates data between apparatus whose built-in or insertion and detachment of the 1st storage of the above is enabled at least.

It is a step of edit which can always be edited about the above-mentioned management information memorized beforehand.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the telecommunications system to which two or more data was transmitted a method and an information-and-telecommunications device and a method to other apparatus from the apparatus by which data was memorized by accumulative.

[0002]

[Description of the Prior Art] Conventionally much CDs (Compact Disc) were stored and what is called a CD changer it is made to have CD played automatically was put in practical use. In this CD changer several ten sheets thru/or several 100 CDs are stored to one case and CD with predetermined selected operation is played automatically. Playback of CD can also be performed for every CD two or more CDs are chosen and random reproduction can be performed per CD unit or music recorded. This CD changer is mainly used fixed being installed indoors.

[0003] On the other hand as portable audio information playback equipment the device using the magneto-optical disc or optical disc whose diameter is abbreviated 64mm is spreading in recent years. This portable audio information playback equipment changes the audio signal of an analog into a digital signal compresses it with the compression technology called ATRAC (Adaptive Transform Acoustic Coding: trademark) and is recorded on a magneto-optical disc. Since an analog voice signal is compressed and it is recorded as digital data there is little degradation of tone quality and since the disk is used for the recording medium there is a merit that random reproduction is possible.

[0004] However in the above-mentioned CD changers since the swap time of CD occurred also in the case of automatic playback it was difficult to realize continuous reproduction. The case became greatly and heavy and a CD changer which stores 100 sheets and 200 CDs had it. [ dramatically inconvenient to carrying or installation ]

[0005] Also in the portable audio information playback equipment mentioned above once it recorded on the magneto-optical disc when playing random reproduction and general playback were able to be performed only in the range of the recorded magneto-optical disc. Therefore in the random reproduction in the magneto-optical disc of two or more sheets or music specification playback the magneto-optical disc needed to be replaced one by one. Therefore the user always had to walk around with the magneto-optical disc of two or more sheets or the optical disc.

[0006] In order to solve these problems for example in the above-mentioned CD changer the music server using recording media such as a hard disk drive whose storage capacity it is comparatively small and is large is proposed. In a music server the audio information currently recorded on CD is read by a predetermined method compression encoding of the read audio information is carried out and it is recorded and accumulated in a hard disk drive. By using the hard disk drive which has the storage capacity of about 6 GByte the music data of about 1000 music is recordable. In a music server since the time and effort which exchanges CDs like

an above-mentioned CD changer is not needed continuous reproduction is easy and since much music data is recordable on one set of a hard disk drive there is an advantage that a case can be miniaturized.

[0007] In above-mentioned portable audio information playback equipment using a hard disk drive and semiconductor memory as record or a storage is proposed. The music server and this portable audio information playback equipment which were mentioned above are connected the audio information accumulated in the music server is transmitted to portable audio information playback equipment and it stores in record or a storage. If the capacity of record or a storage shall be about 200 MB even if a user does not walk around with two or more magneto-optical discs or optical discs it can be managed by him and of course he does not need to perform exchange of a magneto-optical disc or an optical disc either.

[0008]

[Problem(s) to be Solved by the Invention] By the way as mentioned above the music server can accumulate a lot of music data. Therefore if it chose at a time one music data which transmits transmission of the music data to portable audio information playback equipment [ music server ] and it was performed a user will repeat the same operation and had the problem that it was very troublesome.

[0009] In order to solve this the music data accumulated in the music server is chosen a list is created and the method of transmitting collectively the music data registered into this list is also considered. However when a user created a list the purpose whether to like to gather the music data transmitted [ liking whether to arrange the music data which only creates a list and is accumulated in the music server and ] became indefinite easily and there was a problem that it might get confused.

[0010] Therefore the purpose of this invention is to provide the telecommunications system which can transmit the composition data to portable audio information playback equipment [ audio server ] easily a method and a telecommunications device and a method.

[0011]

[Means for Solving the Problem] In order to solve a technical problem mentioned above the invention according to claim 1 The 1st storage is provided with the 1st apparatus built-in or whose insertion and detachment are enabled and the 2nd apparatus that receives data from the 1st apparatus at least at least and it the 2nd apparatus The 2nd storage with which management information of data which built-in or insertion and detachment of are enabled and is memorized by the 1st storage is memorized It has an editing means which can always be edited for management information beforehand remembered to be a means of communication which communicates data between the 1st apparatus at least It is a telecommunications system characterized by transmitting data memorized by the 2nd storage to the 1st storage via a means of communication based on management information.

[0012] The 1st apparatus made possible [ built-in or insertion and detachment of the 1st storage ] for the invention according to claim 8 at least Built-in or insertion and detachment are enabled and it has the 2nd storage with which management

information of data memorized by the 1st storage is memorizedA step of communication which is the information-and-telecommunications method which communicates information between the 1st apparatus and the 2nd apparatus at leastand communicates data between the 1st apparatus at leastIt is the information-and-telecommunications method transmitting management information memorized beforehand by a step of communication to the 1st storage by data which has a step of edit which can always be edited and is memorized by the 2nd storage based on management information.

[0013]In an information-and-telecommunications device which receives data from apparatus made possible [ built-in or insertion and detachment of the 1st storage ] for the invention according to claim 9 at leastThe 2nd storage with which management information of data which built-in or insertion and detachment of are enabledand is memorized by the 1st storage is memorizedA means of communication which communicates data between apparatus whose built-in or insertion and detachment of the 1st storage is enabled at leastIt is an information-and-telecommunications device transmitting data which has an editing means which can always be edited and is memorized by the 2nd storage based on management information in management information memorized beforehand to the 1st storage via a means of communication.

[0014]In an information-and-telecommunications method of receiving data from apparatus made possible [ built-in or insertion and detachment of the 1st storage ] for the invention according to claim 16 at leastA step which memorizes management information of data memorized by the 1st storage to the 2nd storage built-in or whose insertion and detachment are enabledA step of communication which communicates data between apparatus whose built-in or insertion and detachment of the 1st storage is enabled at leastIt is the information-and-telecommunications method transmitting management information memorized beforehand by a step of communication to the 1st storage by data which has a step of edit which can always be edited and is memorized by the 2nd storage based on management information.

[0015]As mentioned aboveclaim 1 and the invention according to claim 8The 1st apparatus whose built-in or insertion and detachment of the 1st storage is enabled at leastCommunication is performed between the 2nd apparatus that receives data from the 1st apparatus at least. The 2nd storage with which the 2nd apparatus is provided and built-in or whose insertion and detachment were enabled memorizes beforehand. In order to transmit data in which edit of management information of data memorized by the 1st storage is always enabledand it is memorized by the 2nd storage based on management information to the 1st storageEven if it will be in a state which can communicate by the 1st apparatus and 2nd apparatusmanagement information can be editedand when it can communicate by the 1st apparatus and 2nd apparatusdata memorized by the 2nd storage based on management information can be transmitted to the 1st storage.

[0016]Claim 9 and the invention according to claim 16Data is received from apparatus whose built-in or insertion and detachment of the 1st storage is enabled

at leastIn order to transmit data in which edit of management information of data memorized by the 1st storage beforehand memorized by the 2nd storage is always enabledand it is memorized by the 2nd storage based on management information to the 1st storageEven if the 1st storage will be in a state which can communicate between apparatus built-in or whose insertion and detachment are enabledmanagement information can be editedand when it can communicatedata memorized by the 2nd storage based on management information can be transmitted to the 1st storage.

[0017]

[Embodiment of the Invention]Hereafterone gestalt of implementation of this invention is explainedreferring to drawings. Drawing 1 shows roughly the system using the music server and music server with which this invention was applied. The music server 50 consists of the server main part 51 and the loudspeaker units 52L and 52R on either side. The indicator 53 which consists of the LCD (Liquid Crystal Display) panelfor exampleand the CD insert portion 54 for inserting CD in the server main part 51 are formed in the server main part 51.

[0018]Although omitted in drawing 1the final controlling element which consists of two or more operation switches for a user to operate the function of the server main part 51 is provided in the server main part 51. It may be made to provide the signal receive section where an infrared signal is received in order to operate the function of the server main part 51 by remote control by a remote commander. The server main part 51 has a controller so that it may mention laterand based on the predetermined program the server main part 51 is beforehand remembered to be by ROMvarious operations are controlled by a controller.

[0019]It is a user's loading the server main part 51 with CD55 via the CD insert portion 54and performing predetermined operation using the final controlling element which is not illustratedThe music currently recorded on CD55 can be enjoyed by outputting the regenerative signal which played CD55 and was played from CD55 from the loudspeaker units 52L and 52R. When CD55 contains text datasuch as a track namebased on text dataa track name etc. are displayed on the indicator 53.

[0020]The music server 50 has a mass recording medium by a hard disk inside. By carrying out predetermined operation using the final controlling element which is not illustratedthe regenerative data played from CD55 with which the server main part 51 was loaded from the CD insert portion 54 is recordable on the recording medium which consists of this hard disk. Under the present circumstancesthe method of recording with the same transfer rate as the reproduction speed of the standard of CD55 and the speed recording which records with a transfer rate more nearly high-speed than the reproduction speed of the standard of CD55 can be chosen. When recording with a high-speed transfer rateselection of the music which is a predetermined procedurewith is recorded on selection of CD or CD by performing accountingand the regenerative data as music data played from CD can be recorded with a transfer rate quicker than the reproduction speed of CD.

[0021]In the music server 50the music data played from CD55 can memorize or



store about 1000 music in the hard disk which compression encoding is carried out by predetermined methods such as ATRAC mentioned above is used as compression music data and is recorded for example has the capacity of 6 GByte. The list of music memorized or stored in the hard disk is displayed on the indicator 53 and the user can choose the arbitrary music of the music memorized or stored in the hard disk and can make it to be based on the music name list currently displayed on the indicator 53 and play. Since random access is possible for a hard disk it can read and carry out continuous reproduction of the music data memorized or stored in arbitrary order. [ much ]

[0022] Although it is possible to use various methods for compression encoding in the example of one aspect of this operation the method called ATRAC2 (Adaptive Transform Acoustic Coding 2) which is indicated by the U.S. Pat. No. 5717821 item for example is used. This is the thing which is a compression encoding system used with the portable audio information playback equipment mentioned above and into which ATRAC was developed. The frequency dependence of the masking effect and lower limit of hearing based on the character of an acoustic sense is used. Conversion coding and entropy coding are used together and compression encoding of voice data is performed. By comparatively small-scale hardware encoding/decoding can be performed at high speed maintaining high-quality sound.

[0023] This music server 50 is connectable with the external system 60 for example the internet server which is servers connected to the Internet via the communication line 61 which is a dial-up line for example. By connecting with this internet server 60 via the communication line 61 various information on the Internet can be acquired from the music server 50. The internet server 60 has databases such as title information of a commercial audio CD for example. When giving a user the key of \*\*\*\* for using this database and using a database the title information of data incidental to CD for example CD can be acquired by operating the key of \*\*\*\*.

[0024] In the internet server 60 accounting to the music server 50 is also performed according to the service supplied to a user. When performing speed recording which CD 55 mentioned above mentioned above When the music server 50 communicates the data of the purport that speed recording is performed to the internet server 60 accounting to the user who performs speed recording is performed and selection of CD selection of music and execution of speed recording are enabled.

[0025] Here although accounting is performed with the internet server 60 which has much additional information of CD this is not limited to the example mentioned above. For example it may be made to perform accounting mentioned above by another server connected to the Internet. For example it is different from the Internet it is also possible for it to be made to perform accounting which is a network for exclusive use with was mentioned above.

[0026] The portable recording and reproducing device 70 has a storage which consists of a hard disk or a flash memory. If musical reproduction speed can be

followed other storages or recording media can also be used. By being the path cord 71 with connecting this portable recording and reproducing device 70 with the music server 50 the music data currently recorded on the music server 50 can be transmitted to the portable recording and reproducing device 70 and it can record on the storage of the portable recording and reproducing device 70. At this time by the music server 50 side although the music data transmitted to the device 70 exists on a hard disk or the storage of a flash memory it changes it into a state [ being unreproducible ]. The music data the recording medium\*\*\*\*\* and others used with the portable recording and reproducing device 70 is made into the capacity of about 200 MByte for example and is [ music data ] several ten music can be memorized or stored. In the following explanation recording mediasuch as the storage cell or storage which consists of semiconductor memorysuch as a flash memory and disk shape recording mediasuch as a hard disk will be named generically and a storage will be called.

[0027] When the above-mentioned transfer method used in this invention i.e. music data is transmitted music data is recorded on the storage of the destination and in the storage of the source it calls it "movement" to change into a state [ being unreproducible ] although the transmitted music data exists on a storage. The unrestricted duplicate of music data can be prevented by moving in this way.

[0028] Although it presupposed that the music server 50 and the portable recording and reproducing device 70 are connected with the path cord 71 in the example mentioned above this is not limited to this example. For example the applied part mutually corresponding to the music server 50 and the portable recording and reproducing device 70 is provided the music server 50 is directly equipped with the portable recording and reproducing device 70 and data can be exchanged between the server 50 and the device 70. Not only electric connection but the interface corresponding to IrDA (Infrared Data Association) which exchanges data for example with an infrared signal is prepared for the both sides of the server 50 and the device 70. It may be made to transmit music data between the server 50 and the device 70 with an infrared signal.

[0029] Information can be exchanged now with various media by providing a predetermined interface in the music server 50. For example it becomes possible to incorporate into the music server 50 the music data distributed with PC card 80 by providing the interface corresponding to PC card 80 in the server 50 or to exchange data between a personal computer and the music server 50. By providing the serial digital interface by an optical cable etc. in the server 50 for example it becomes possible to exchange music data with other digital music data recording and reproducing devices like the disk recorder 81 using a small magneto-optical disc 64 mm in diameter. In this example it is equipped with the disk cartridge 82 by which the small magneto-optical disc mentioned above to the disk recorder 81 was stored and the music data played from the magneto-optical disc of the disk cartridge 82 is supplied to the music server 50. Similarly the interface of IEEE1394 etc. is provided in the server 50 for example the set top box 83 for CATV (Cable Television) satellite broadcasting etc. can be connected.

[0030] A PC card is a standard of the card shape peripheral equipment for personal computers by joint establishment of American PCMCIA (Personal Memory Card International Association) and Japanese JEIDA (JEOL industrial promotion meeting). IEEE1394 is the interface standard adopted by Institute of Electrical and Electronics Engineers.

[0031] The music server 50 can have a WWW (World Wide Web) browser as built-in application. It is on the Internet for example various contents described by HTML (Hypertext Markup Language) can be searched and it can be made to display on the indicator 53 by connecting with the internet server 60 via the communication line 61.

[0032] It is such composition with the user can play the music data memorized or stored in the music server 50 for example and it can be heard by the loudspeaker units 52L and 52R and the server 50 can be loaded with CD55 via the CD insert portion 54 and CD55 can be played.

[0033] By communicating with the music server 50 and the internet server 60 the title information etc. of CD55 with which the server 50 was loaded via the CD insert portion 54 can be automatically acquired from the server 60 via the communication line 61. The information acquired from the server 60 is saved in the music server 50 and the saved title information is displayed on the indicator 53 of the server 50 if needed.

[0034] More specifically the information on user \*\*\*\* such as user ID data of the server 50 (User Information is called hereafter) is sent from the music server 50 to the internet server 60. In the internet server 60 side collation processing and accounting are performed based on received User Information. The media information of CD needed from the music server 50 by a user to the internet server 60 or CD currently played is sent. In the internet server 60 search of the additional information over music data such as a title of music performer's name a composer and a songwriter name words and a jacket image is performed based on the received media information. And in the internet server 60 the predetermined information about CD demanded by the user is replied to the music server 50.

[0035] For example it is TOC (Table Of Contents) of CD55 as media information. Information is sent to the internet server 60. The database with which the additional information over above-mentioned music data can be searched based on this TOC information is built by the internet server 60. It may be made to acquire additional information by searching other WWW servers on the Internet. The internet server 60 searches the additional information of music data by making received TOC information into media information. For example this can be searched based on the hour entry of each musical piece recorded on CD55 included in TOC information.

[0036] The additional information acquired by being searched is sent to the music server 50 from the internet server 60. In the music server 50 the received additional information is displayed on the indicator 53 and it is written in a hard disk drive with the TOC information of CD55 by CPU8 mentioned later for example. Additional information can be displayed with the WWW browser software built in in

the music server 50 by embedding the searched additional information at an HTML file and sending from the server 60.

[0037] If other URL (Uniform Resource Locator) on the Internet is described by additional information the homepage on the Internet etc. which are shown by other URL in this music server 50 can be accessed.

[0038] By communicating data between the internet server 60 and the server 50 rather than the reproduction speed of the standard as which the music data of CD55 with which the server 50 was loaded via the CD insert portion 54 is specified to CD55 by the storage of the music server 50 it is a high speed and the music data for one sheet of CD55 can be recorded in about 2 minutes for example. When not communicating between the internet server 60 and the server 50 it is recorded on the storage of the server 50 by speed equal to the reproduction speed of the standard as which CD55 is specified and 1X.

[0039] By connecting with the portable recording and reproducing device 70 with the path cord 71 the server 50 can transmit the music data memorized or stored in the music server 50 to the portable playback equipment 71 and can be moved. Also in the state where the server 50 and the device 71 are not connected by the path cord 71 it can reproduce with the portable recording and reproducing device 70 for example the moved music data can be heard by the headphone 72. With the music server 50 it changes into a state [ being unreproducible ] the music data transmitted and moved.

[0040] Drawing 2 shows an example of the composition of the music server 50. First in this music server 50 RAM5 and ROM6 which were mutually combined by bus flash memory 7 and CPU8 is provided like the composition of the usual personal computer. CPU8 is connected to the bus 40. CPU8 functions as a controller and operation of the whole music server 50 is controlled.

[0041] The program for controlling operation of this music server 50 is beforehand memorized by ROM6. In the music server 50 operation corresponding to the operation of the alter operation part 1 which CPU8 mentions later is performed based on this program. A data area when executing a program and a task field are temporarily secured to RAM5 and the flash memory 7. The program loader is memorized by ROM6 and it is also possible for the program itself to be loaded to the flash memory 7 by the program loader of ROM6.

[0042] The alter operation part 1 consists of a switch etc. which are respectively operated by the key operation keys of two or more push types and a moving type and these operation keys for example. The operation key of the rotation push type called not only this but a jog dial the touch panel on LCD etc. may be sufficient as the alter operation part 1. Of course the switch mechanism which reacts by carrying out a depression can also be used. The signal according to operation of this alter operation part 1 is supplied to CPU8 via the bus 40. In CPU8 the control signal for controlling operation of the music server 50 based on the signal from the alter operation part 1 is generated. The music server 50 operates according to the control signal generated by CPU8.

[0043] The infrared ray interface (IrDA I/F) driver 3 and/or the USB (Universal

Serial Bus) driver 4 are connected to the bus 40. To these drivers 3 and 4 communication or connection is possible for the keyboard 2 and it is made. By using the keyboard 2 the track name corresponding to the music data recorded for example an artist name etc. can be inputted easily. It may constitute so that data transfer may be performed via the infrared interface driver 3 or the USB driver 4. These infrared ray interfaces 3 and the USB driver 4 can be omitted.

[0044] CD-ROM drive 9 is connected to the bus 40 and CD-ROM drive 9 is loaded with CD55 inserted from the disk insertion section 54 as mentioned above. In this CD-ROM drive 9 it is the reproduction speed of the standard specified from CD55 set with music data is read. In this CD-ROM drive 9 it is more nearly high-speed than the reproduction speed of the standard specified for example the music data of CD55 can be read at speeds such as 16 times of the reproduction speed of the standard specified and 32 times.

[0045] It may be made equivalent [ CD-ROM drive 9 ] to the recording medium of other shape of a disk not only an above-mentioned example but music data is remembered to be for example a magneto-optical disc and DVD (Digital Versatile Disc). The drive corresponding to a memory card can also be used. The data read from CD-ROM drive 9 is not restricted to music data. Image data, text data, program data etc. can be read.

[0046] The hard disk drive (it is hereafter called HDD for short) 10 is connected to the bus 40. The music data read from CD-ROM drive 9 is recorded on HDD10. The music data read to HDD10 with CD-ROM drive 9 as pretreatment on which music data is recorded is supplied to the compression encoder 12 via DRAM11 the bus 40 and for audios.

[0047] In the compression encoder 12 for example it mentioned above compression coding processing of music data is performed by the compression method currently indicated by the U.S. Pat. No. 5717821 item etc. for example. Based on control of CPU8 as for the speed of compression of the music data based on the compression encoder 12 a low speed and two high-speed speed are prepared. Low-speed compression velocity corresponds to the reproduction speed of the standard specified to CD55 with CD-ROM drive 9. A compressive speed is changed for example according to the reproduction speed of CD55 by CD-ROM drive 9. In the compression encoder 12 the encoding algorithm according to compression velocity drives.

[0048] Change of the compression velocity in the compression encoder 12 is not limited to the method mentioned above. For example it may carry out by changing the clock frequency of the compression encoder 12 and may be made to prepare respectively different hardware. It carries out by operating processing on a curtailed schedule and may be made to correspond to low-speed compression velocity in the compression encoder 12 compressible high-speed.

[0049] The compression music data by which compression encoding was carried out is recorded and accumulated in HDD10 via DRAM11 with the compression encoder 12.

[0050] Are constituted so that the compression music data by which compression

encoding was carried out with the compression encoder 12 may be accumulated in HDD10 herebut. The music data read from CD-ROM drive 9 is directly supplied to HDD10and it can record and accumulate in the hard disk of HDD10.

[0051]In this examplethe audio signal inputted via the amplifier 14 from the microphone connected to the terminal 13 and the audio signal inputted from the line-in end 15 are supplied to the compression encoder 12 via A/D converter 16. Compression encoding of these audio signals can be carried out with the encoder 12and it can record on HDD10. An optical digital signal is supplied to the compression encoder 12 via the IEC958 (International Electrotechnical Commission 958) encoder 18 from the optical digital input end 17. It is possible to carry out compression encoding of the audio signal supplied as an optical digital signal with the encoder 12and to record on the hard disk of HDD10.

[0052]In the example mentioned abovealthough the compression encoder 12 illustrated the case where an encoding algorithm which is indicated by U.S. Pat. No. 5717821for example was usedit is not limited to the example mentioned above. That isif it is an encoding algorithm by which an information compression is carried out in the compression encoder 12it is also possible to use other things. The compression encoder 12for example MPEG (moving picture coding experts group)It may be made to use encoding algorithmssuch as PASC (precision adaptive sub-band coding)TwinVQ (trademark)RealAudio (trademark)and LiquidAudio (trademark).

[0053]The modem 20 is connected to the bus 40. The external networks 19such as a dial-up lineCATVor wireless communicationare connected to the modem 20for example. Communication of this music server 50 which passes the external network 19 with the modem 20 is enabled.

[0054]Via the external network 19the music server 50 is connected to the Internet and communication is performed between the music server 50 and the internet server 60 of a remote place. The media information which is information relevant to CD55 with which the request signal and CD-ROM drive 9 are equipped from the music server 50 to the internet server 60Varieties of informationsuch as the user ID data which was alikerespectively and was given beforehand and User Information of the music server 50and accounting information to a userare transmittedand it is sent out.

[0055]Varieties of informationsuch as media information User Informationare transmitted to the internet server 60and collation processing and accounting are performed based on User Information of the user ID data etc. which were receivedand the server 60. Based on the received media informationthe additional information of music data is searched and it is returned to the music server 50.

[0056]Although the example which replies the additional information of music data was shown heremusic data is able to be directly supplied from the external network 19 based on a user's demand. That isthe user can download music data from the internet server 60 using the music server 50. Music data can be replied corresponding to media information. According to thisthe bonus track of predetermined CD55 can be acquired by distributionfor example.

[0057]If the compression music data which compression encoding was carried out

with the compression encoder 12 and was recorded and accumulated in HDD10 is read from HDD10 for reproduction it will be supplied to the compression decoder 21 via Buss 40. The compression music data read from HDD10 has compression encoding solved by the compression decoder 21 and is drawn by the terminal 24 via D/A converter 22 and the amplifier 23. It is supplied from the terminal 24 to the loudspeaker units 52L and 52R and music is played. Although omitted in drawing 2 two courses which result in the terminal 24 via the amplifier 23 from D/A converter 22 are established corresponding to a stereo output. Similarly the two terminals 24 are also formed corresponding to the stereo.

[0058] In the compression decoder 21 the decode algorithm corresponding to the encoding algorithm in the compression encoder 12 is used. This compression decoder 21 and the above-mentioned compression encoder 12 may be the software processings by CPU8 without having hardware.

[0059] The liquid crystal display element (it is hereafter called LCD for short) 26 which constitutes the indicator 53 is connected to the bus 40 via LCD driving circuit 25. A drawing control signal is supplied to LCD driving circuit 25 via the bus 40 from CPU8. Based on the supplied drawing control signal LCD 26 drives and a predetermined display is made by LCD driving circuit 25 at the indicator 53.

[0060] The operation menu of the music server 50 is displayed on LCD 26 for example. The title list of the compression music data recorded and accumulated in HDD10 is displayed on LCD 26. Since the data based on the data which decoded the additional information transmitted from the internet server 60 is supplied to HDD10 the display of the title list of LCD 26 is performed based on the data memorized by HDD10. The folder and jacket image corresponding to the compression music data which is chosen for example and is reproduced are displayed on LCD 26 based on the additional information transmitted from the internet server 60.

[0061] Based on the display of this LCD 26 CPU8 performs reproduction control of the directed music data by operating the pointing device of the alter operation part 1 and the keyboard 2. It is possible to also perform selected elimination of music data duplicate to the selected apparatus of the exterior of music data and control of movement based on the display of LCD 26. For example when the alter operation part 1 is the touch panel provided on LCD 26 the music server 50 can be operated by touching a touch panel according to the display of LCD 26. Thus the music data recorded and accumulated in HDD10 is managed and controlled by a user by considering LCD 26 as an interface.

[0062] In the 1st gestalt of this operation IEEE1394 and a PC card are supported as an interface of the music server 50 and external common information machines and equipment. IEEE1394 interface 28 is connected via the IEEE1394 driver 29 to the bus 40. Similarly PC Card slot 31 is connected via the PC card driver 30 to the bus 40.

[0063] With IEEE1394 interface 28 data can be exchanged between the music server 50 and a personal computer. With IEEE1394 interface 28 IRD for satellite broadcasting (Integrated Receiver/Decoder) Music data can be incorporated from

the small magneto-optical disc of 64 mm of diameter abbreviation an optical disc DVD (Digital Versatile Disc: trademark) digital videotape etc. By equipping PC Card slot 31 with a PC card extension of various peripheral equipments such as an external storage other media drives or a modem a terminal adopter and a capture board is easy.

[0064] The interface 34 is an interface for exchanging music data etc. between this music server 50 and other corresponding recording and reproducing devices. The portable recording and reproducing device 70 shown for example in above-mentioned drawing 1 is applied to other recording and reproducing devices. Not only this but other recording and reproducing devices may be another music servers 50.

[0065] The interface 34 is connected via the interface driver 33 to the bus 40. The interface 34 and the interface 35 which becomes a pair are formed in other corresponding recording and reproducing devices. By electrically connecting the interfaces 34 and 35 with the predetermined path cord 71 the music data recorded and accumulated in HDD10 can be transmitted to other recording and reproducing devices from the music server 50 for example.

[0066] Drawing 3 shows roughly the flow of a signal until the music data read with CD-ROM drive 9 is recorded on HDD10. The music data read from CD-ROM drive 9 is once memorized via the bus 40 by DRAM11 as a buffer memory. Music data is read from DRAM11 to predetermined timing and the compression encoder 12 is supplied via the bus 40. As mentioned above let the compression encoder 12 be the predetermined compression velocity according to the reproduction speed of CD-ROM drive 9. Compression encoding of the music data is carried out with the compression encoder 12 and it is once again memorized by DRAM11 as a buffer memory. The compression music data read from DRAM11 to predetermined timing is supplied to HDD10 via the bus 40 and is recorded on the hard disk of HDD10. At this time as mentioned above the information on CD55 currently played by the internet server 60 with CD-ROM drive 9 is transmitted. The additional information of CD55 transmitted from the server 60 is also recorded on the hard disk of HDD10 and it is managed by CPU8 etc. as one data with the compression music data based on the music data read from CD55.

[0067] Drawing 4 shows roughly a signal flow until the compression music data read from HDD10 is regenerated and it is drawn by the terminal 24. The compression music data read from HDD10 is once memorized via the bus 40 by DRAM11 as a buffer memory. And compression music data is read from DRAM11 to predetermined timing and the compression decoder 21 is supplied via the bus 40. Compression music data has compression encoding solved by the compression decoder 21 is used as music data and is supplied to D/A converter 22. And music data is changed into an analog voice signal by D/A converter 22 is amplified with the amplifier 23 and is drawn by the terminal 24 as a reproducing output. If the loudspeaker is connected to the terminal 24 the music played by the loudspeaker can be enjoyed. Under the present circumstance the additional information read from the disk of HDD10 with compression music data is decoded by CPU8 etc. and



a track name etc. are displayed on the indicator 53.

[0068] Drawing 5 shows an example of the composition of the portable recording and reproducing device 70 used as other recording and reproducing devices. This portable recording and reproducing device 70 has composition equivalent to the music server 50 shown in in general above-mentioned drawing 2. Usually the interface 34 by the side of the music server 50 and the interface 35 by the side of the portable recording and reproducing device 70 are separated and this portable recording and reproducing device 70 is carried as a simple substance and is used.

[0069] First in this portable recording and reproducing device 70 RAM103 and ROM104 which were mutually combined by bus and CPU105 are provided like the composition of the usual personal computer. Of course it may be made to provide a flash memory like the composition of the above-mentioned music server 50. CPU105 is connected to the bus 130. CPU105 functions as a controller and operation of the whole portable recording and reproducing device 70 is controlled by CPU105.

[0070] The program for controlling operation of this portable recording and reproducing device 70 is beforehand memorized by ROM104. In the portable recording and reproducing device 70 the operation corresponding to the operation of the alter operation part 102 mentioned later is made based on this program. A data area when executing a program and a task field are temporarily secured to RAM103.

[0071] The alter operation part 102 consists of an operation key of two or more push types and a moving type and two or more switches operated by these operation keys for example. The handler of the rotation push type called not only this but a jog dial the touch panel on LCD mentioned later etc. may be sufficient as the alter operation part 102. Of course the mechanical switch mechanism which reacts by carrying out a depression can also be used. The signal according to operation of this alter operation part 102 is supplied to CPU105 via the bus 130. The control signal for controlling operation of the portable recording and reproducing device 70 based on the output signal generated when CPU105 operates the operation key of the alter operation part 102 is generated. Operation is changed based on the control signal with which the portable recording and reproducing device 70 was generated by CPU105 and operation is controlled.

[0072] The music data to which it was read from HDD10 and the transmission to this portable recording and reproducing device 70 was directed in the music server 50. The path cord which connects the interface 34 the interface 35 and the interface 34 and the interface 35 is passed and this portable recording and reproducing device 70 is transmitted or supplied. The additional information of the music data to which transmission was simultaneously directed with the music data which had transmission specified at this time is also transmitted to the device 70. When the applied part mutually corresponding to the music server 50 and the portable recording and reproducing device 70 is provided respectively the interface 34 and the interface 35 are connected directly and transmission of music data is performed between the server 50 and the device 70. When the interface by IrDA is

prepared for the both sides of the device 70 and the server 50 it is an infrared signal with transmission of music data is performed between the server 50 and the device 70.

[0073] The music data which was transmitted to the device 70 and supplied to it from the server 50 is supplied to HDD106 which is a music data recording medium of this portable recording and reproducing device 70 via the bus 130 from the interface driver 101 and is recorded on the hard disk of HDD106.

[0074] As a music data recording medium of this portable recording and reproducing device 70 a flash memory can also be used in addition to HDD106 for example. If the reproduction speed of music data can be followed other recording media called a magneto-optical disc can also be used as a recording medium of music data for example. As a music data recording medium of the device 70 several ten music is recordable by using the thing of the storage capacity of about 200 MByte for example. The additional information of the music data transmitted from the server 50 and the music data concerned is also recorded on the disk of HDD106 of the device 70.

[0075] In the music server 50 compression encoding \*\*\*\* of the music data which is transmitted and is recorded on HDD106 in this example is already compression music data. In this portable recording and reproducing device 70 not only this example but the music data by which compression encoding is not carried out is supplied and it can also record on the hard disk of HDD106. For example the music data which was played and was read from CD55 with which CD-ROM drive 9 of the music server 50 was equipped is directly supplied to the portable recording and reproducing device 70 via the interface driver 101. However when supplying the device 70 directly it cannot be overemphasized that the number of recordable music data is restricted substantially.

[0076] As pretreatment by which music data is recorded on the hard disk of HDD106 the supplied music data is temporarily memorized to DRAM107 for audios connected to the bus 130. The music data read from DRAM107 is supplied to the compression encoder 108 via the bus 130. The compression encoder 108 performs compression coding processing of music data with an encoding algorithm equivalent to the compression encoder 12 in the music server 50. With the compression encoder 108 the compression music data by which compression encoding was carried out is supplied to DRAM107 and is again memorized temporarily by DRAM107. The compression music data memorized by this DRAM107 is read eventually and it is recorded on the hard disk of HDD106.

[0077] As mentioned above when movement is directed to the compression music data accumulated in HDD10 in the music server 50 and it is transmitted and transmitted to this portable recording and reproducing device 70 Although the compression music data of HDD10 exists as data on HDD10 it changes it into the state where it cannot read from HDD10 and cannot reproduce. The compression music data moved to the device 70 is renewable by the moved material 50 i.e. a server by being again returned to the recording medium of a moved material i.e. HDD10 of the server 50. At this time the compression music data

returned to the server 50 is deleted from the hard disk of HDD106 of the device 70 as a recording medium of a movement destination.

[0078]In this example the audio signal inputted via the amplifier 110 from the microphone connected to the terminal 109 and the audio signal inputted from the line-in end 111 are supplied to the compression encoder 108 via A/D converter 112. Compression coding processing can be performed to the audio signal supplied from A/D converter 112 with the compression encoder 108 and it can record on HDD106. An optical digital signal is supplied to the compression encoder 108 via the IEC958 encoder 114 from the optical digital input end 113. Compression coding processing can be performed with the encoder 108 and the audio signal supplied as an optical digital signal can be recorded on the hard disk of HDD106. If it is portable playback equipment only for reproduction of only reproducing the music data in which the device 70 was compressed all of A/D converter 112 mentioned above the encoder 108 etc. are also omissible.

[0079]It is read from HDD106 for reproduction of compression music data and the compression decoder 115 is supplied via the bus 130. The music data which elongation processing was performed [ music data ] at the supplied compression music data and had compression encoding solved by the compression decoder 115 is drawn by the terminal 118 via D/A converter 116 and the amplifier 117. The headphone 72 are connected to the terminal 118 for example. The user can listen to the played music by equipping with these headphone 72. Although omitted in drawing 5 two signal paths which result in the terminal 118 via the amplifier 117 from D/A converter 116 are established corresponding to the stereo output of L-channel and R-channel. Similarly the two terminals 118 are also formed corresponding to the stereo of L-channel and R-channel.

[0080]LCD120 is connected to the bus 130 via LCD driving circuit 119. It drives based on the drawing control signal with which the drawing control signal was supplied from CPU105 to LCD driving circuit 119 via the bus 130 and LCD120 was supplied and a predetermined display is made by LCD120. The title list etc. of the music data memorized by operation menu [ of the portable recording and reproducing device 70 ] and HDD106 are displayed on LCD120. It may be made to display the folder and jacket image corresponding to the music data which is chosen as LCD120 from the music data memorized by HDD106 for example and is reproduced based on the additional information memorized by HDD106.

[0081]Based on the display of this LCD120 one compression music data in the compression music data memorized by HD106 is chosen and reproduced because a user operates the pointing device of the alter operation part 102. It is possible to also perform selected elimination of compression music data and control of a duplicate and movement based on the display of LC120. For example according to the display of LCD120 the operational input of the portable recording and reproducing device 70 can be performed because a user touches the touch panel of the alter operation part 102. Thus the compression music data recorded on HDD106 is controlled for management and record reproduction etc. by a user by considering LCD120 as an interface.

[0082] Although omitted in drawing 5 this portable recording and reproducing device 70 is driven with a battery. Therefore the power supply section which makes a rechargeable battery and a dry cell with the common device 70 power supply sources is provided and a live part is provided. When the music server 50 and the portable recording and reproducing device 70 are directly connected by a path cord or the applied part with transmission of music data electric power is supplied from the music server 50 and as for a live part charge of the rechargeable battery of the device 70 is performed. Of course the rechargeable battery of the device 70 can be charged by external charging power. It may be made to use or provide only what [ of the charging power using the power supply and rechargeable battery by a dry cell ] on one or one side as a supply source of a power supply.

[0083] Drawing 6 shows other examples of the above-mentioned portable recording and reproducing device 70. In this drawing 6 the same number is attached to the part which is common in above-mentioned drawing 5 and detailed explanation is omitted. As for the portable recording and reproducing device 170 shown in drawing 6 the switching circuit 200 is inserted between HDD (or flash memory) 106a and the bus 130 to the composition of above-mentioned drawing 5. One selection end 200a of the switching circuit 200 is connected with the bus 130 and the selection end 200b of another side is connected with the interface 35. HDD 106a is separated from the bus 130 by the switching circuit 200.

[0084] In the case of the compression music data transmission from the music server 50 a change or the selection end 200b is chosen as the selection end 200b in the switching circuit 200. HDD 106a and the bus 40 of the music server 50 are directly connected via the interfaces 34 and 35. When HDD 106a is seen from CPU 8 of the server 50 it is visible as if \*\* was also a recording medium of the music server 50. Direct control of HDD 106a is enabled by CPU 8 of the music server 50. Movement a copy etc. of compression music data between the music server 50 and the portable recording and reproducing device 70 can be performed easily.

[0085] Next operation of the system constituted as mentioned above is explained. First the function performed by music server 50 independent one is explained. Drawing 7 is a flow chart of an example of the processing at the time of recording the music data of CD 55 with which CD-ROM drive 9 was equipped on the disk of HDD 10 of the music server 50.

[0086] It waits for the recording request of HDD 10 of the music data of CD 55 by a user in the first step S10. For example if a recording request is inputted by the user using the alter operation part 1 processing will shift to Step S11. In Step S11 speed recording and "record by 1X" are judged for the record demanded by the user. For example when a recording request is advanced by the above-mentioned step S10 it is specified [ both ] by the user whether the method of recording is performed [ 1X ] by whether it carries out at high speed. "1X record" here refers to the operation which is read with the standard speed to which CD 55 is specified and is recorded on the disk of HDD 10 and "speed recording" means the operation which is read with standard speed more than

twice the speed of being specified by CD55 and is recorded on the disk of HDD10. [0087] At Step S11 when performing "speed recording" is specified processing shifts to Step S12 and the accounting system of the servers 50 and 60 is started. The processing by the accounting system of the servers 50 and 60 is mentioned later. If accounting by the accounting system of the server 50 is performed and speed recording is permitted from a device besides the internet server 60 processing shifts to Step S13 high-speed compression processing will be started in the compression encoder 12 and processing will shift to Step S15.

[0088] On the other hand when recording at Step S11 at 1X is specified processing shifts to Step S14 it is the compression encoder 12 and low-speed compression processing is started. Processing shifts to Step S15.

[0089] In Step S15 based on control of CPU8 it is a predetermined speed with CD-ROM drive 9 drives and the music data recorded on CD55 with which CD-ROM drive 9 was loaded is read. Compression encoding of the read music data is carried out with the compression encoder 12 and it is transmitted and recorded on the disk of HDD10.

[0090] When transmission of the compression music data read from CD55 of HDD10 was completed at Step S16 The data transfer from CD-ROM drive 9 to HDD10 is considered as prohibition at the following step S17 and compression processing of the compression encoder 12 is further suspended at the following step S18.

[0091] Drawing 8 is a flow chart which shows an example of the accounting of the accounting system in Step S12 of the flow chart of above-mentioned drawing 7. Accounting is made by performing data communications between the music server 50 and the internet server 60. Drawing 8 A shows the accounting in the accounting system in the music server 50 and drawing 8 B shows the accounting of the accounting system in the internet server 60.

[0092] If accounting is started first at Step S20 of drawing 8 A between the music server 50 and the internet server 60 it will be a predetermined protocol with communication will be started. If it is checked at Step S21 that connection between the server 50 and the server 60 is established and it can communicate between the server 50 and the server 60 processing will shift to Step S22.

[0093] In Step S22 CD-ROM drive 9 is loaded and the TOC information of CD55 which is transmitted to HDD10 and recorded on it is sent out from the music server 50 to the internet server 60. The speed recording information which shows that speed recording is performed with the TOC information of CD55 is sent out to the internet server 60 from the music server 50.

[0094] On the other hand in drawing 8 B to supply or transmit the speed recording information from the music server 50 and TOC information is waited with the internet server 60 (Step S30). If these speed recording information and TOC information are received by the server 60 search of the TOC information transmitted at Step S31 using the database in the server 60 or an external database based on the transmitted TOC information will be performed. CD55 is specified by retrieving the information corresponding to TOC information.

[0095]Accounting is made at the following step S32. The amount of money charged based on the informationincluding the number of musicetc.that speed recording was performed is computedand fee collection can be performed byfor examplebeing pulled down from the account of the bank specified by the user based on a user's credit card number registered beforehand. The charging method provides not only this but the function to read a prepaid card to the music server 50 for exampleThe set-up charge amount is sent out to the music server 50and the method of paying charge amount is also considered by reducing the amount of money by which the user was charged from the prepaid card. Based on TOC informationcharge amount can be changed according to the contents of CD55or record on the disk of HDD10 of the music data read from CD55 can also be forbidden.

[0096]At Step S33accounting information is sent out to the music server 50. And in drawing 8 Aa check is made for the contents of the accounting information transmitted by the music server 50 side (Step S23). Also the internet server 60 sideit is checked whether accounting information has been received by the music server 50 (Step S34). For examplethere is no error in the accounting information received by the music server 50 sideand when it is checked that it had been received correctlyit is carried out by transmitting the data which expresses confirmed to the server 60 from the music server 50.

[0097]It returns to drawing 8 Aand if the accounting information which received by the music server 50 side at Step S23 is checkedprocessing will shift to Step S24 and the accounting information etc. which were received will be displayed on the indicator 53. At Step S25by CD-ROM drive 9music data is read from CD55 at high speedcompression processing is performed by the compression encoder 12 by high-speed compression velocityand the compression music data from the compression encoder 12 is supplied to HDD10and is recorded on the disk of HDD10. This step S25 is equivalent to Step S15 in above-mentioned drawing 7.

[0098]By the wayin one gestalt of this operationcoordinated movements are made possible between the music server 50 and the portable recording and reproducing device 70. For examplewhen moving music data from the music server 50 to the portable recording and reproducing device 70the coordinated movements between the server 50 and the device 70 are made. Drawing 9 shows the flow chart of an example of this movement.

[0099]Firstit is judged at the first step S40 whether the music server 50 and the portable recording and reproducing device 70 are connected with the interfaces 34 and 35. Detection of connection is made by the thing of the server 50 and the device 70 for which a predetermined signal is exchangedfor example among the interfaces 34 and 35. The detection of connection can provide a switch mechanism in the portion of the server 50 and the device 70 which connects not only this but the music server 50 and the portable recording and reproducing device 70and can also make connection between the server 50 and the device 70 into it using a mechanical detecting mechanism.

[0100]If connection between the server 50 and the device 70 is checked at Step

S40 it will be judged whether movement to the portable recording and reproducing device 70 of the music data recorded and accumulated in HDD10 at the following step S41 is demanded. For example information including a track name is displayed in a list for the compression music data accumulated in HDD10 to the indicator 53 and predetermined compression music data is chosen from the list display currently displayed on the indicator 53 by the user with the predetermined pointing device of the alter operation part 1. Directions of movement to the portable recording and reproducing device 70 are inputted to the compression music data chosen from the alter operation part 1 by the user.

[0101] The input method of the directions of movement using the alter operation part 1 is considered variously. For example the button which directs movement to the indicator 53 is displayed and it can carry out by specifying this button using the pointing device of the alter operation part 1. For example it is also possible to carry out by what is called drag and drop that move to up to the icon which shows the portable recording and reproducing device 70 of the movement destination currently too displayed on the indicator 53 in the icon which displays an icon on the indicator 53 for every compression music data and is displayed on the indicator 53. Of course movement may be directed by operation of the operation switch formed in the alter operation part 1.

[0102] If there is a move demand of compression music data at Step S41 the file size of the compression music data in which movement was specified by for example CPU8 by the side of the server 50 i.e. data volume will be investigated at Step S42. It is the following step S43 and the availability of HDD106 i.e. a recordable storage capacity is investigated by CPU105 of the portable recording and reproducing device 70 for example. The availability of this HDD106 and the file size of the compression music data in which movement investigated at Step S42 was specified are compared by CPU8 of the server 50. It is judged whether based on the comparison result in Step S42 the compression music data in which movement was specified by CPU8 can record on this HDD106. If record to HDD106 is enabled processing will shift to Step S45 and transmission of the compression music data in which movement was specified towards the device 70 from the server 50 will be started.

[0103] On the other hand if it is judged at Step S43 that HDD106 of the portable recording and reproducing device 70 runs short of availabilities processing will shift to Step S44. In Step S44 so that record to HDD106 of the compression music data in which movement was specified may be possible it is deleted by CPU105 of the device 70 based on the procedure and technique which the compression music data already recorded on HDD106 is automatic or mentions later and processing shifts to Step S45.

[0104] Deletion of the compression music data in Step S44 is automatically performed to HDD106 at the basis of control of CPU105 based on the predetermined parameter of the compression music data already recorded. For example in the portable recording and reproducing device 70 reproduction frequency is counted for every compression music data currently recorded on HDD106 and it

is possible to delete from HDD106 sequentially from what has few reproduction frequency. The compression music data currently recorded on the old order of the date recorded on HDD106 by HDD106 can be deleted.

[0105]When deleting compression music data from HD106 automatically at Step S44compression music data important for a user may be deleted from HD106. In order to prevent thisit is an operating state by which compression music data is automatically deleted from HD106 by LCD120 of the indicator 53 of the music server 50or the portable recording and reproducing device 70The alarm display of displaying the list of the data deleted is performedand after obtaining a user's checkcompression music data can be deleted from HD106. The list of the compression music data already recorded on HDD106 is displayed to LCD120 of the indicator 53 of the music server 50or the portable recording and reproducing device 70and how the user itself chooses the compression music data to delete can be taken.

[0106]When processing of the above-mentioned step S43 and Step S44 changes into the state in which record to HDD106 of the compression music data in which movement was specified among the compression music data memorized by HD10 is possibleat Step S45. Transmission of the compression music data from the music server 50 to the portable recording and reproducing device 70i.e.transmissionis started. That isthe compression music data read from HDD10 is supplied to the portable recording and reproducing device 70 via the bus 40 and the interface 34. In the portable recording and reproducing device 70the compression music data supplied via the interface 34 is recorded on HDD106 via the interface 35.

[0107]The transmitted compression music data exists in HDD10 by the side of the music server 50 as well as transmission before to the device 70. In one gestalt of this operationreproduction of the applicable compression music data which is movedending with transmission 70i.e.the deviceto the device 70and exists in HDD10 is considered as prohibition (Step S46). For examplewhen movement to the device 70 is completedthe reproduction inhibit flag which shows reproduction inhibit to the compression music data of HD10 is set. By this reproduction inhibit flagreproduction of the compression music data moved to the device 70 by CPU8 of the server 50 is forbiddenand it means that music data was virtually moved from the music server 50 to the portable recording and reproducing device 70 for the compression music data memorized by HDD10. Thereforemusic data renewable with the server 50 or the device 70 among two or more compression music data is managed as always existed only in oneand the duplicate of inaccurate music data is prevented.

[0108]In the following step S47it is judged whether a move demand to the device 70 of the following compression music data is. Processing is returned to Step S42 to move the compression music data of further others. When there is no move demand of the music data beyond thisprocessing of movement of a series of music data is ended.

[0109]Although it is explained by \*\*\*\* that one compression music data in two or



more compression music data memorized by HDD10 at Step S42 – Step S46 of the flow chart of drawing 9 is moved to the device 70 from the server 50. It is not limited to this but two or more compression music data is gathered and it can move to the device 70 from the server 50.

[0110] Although the compression music data moved by processing of Step S46 in HDD10 of the music server 50 which is a moved material is only made into reproduction inhibit and it explained that the compression music data itself was recognizing existence in one gestalt of operation mentioned above. This is not limited to an example but it may be made to eliminate deletion (i.e. the data itself) for the moved compression music data from HDD10.

[0111] Although one gestalt of operation mentioned above explained the example which moves compression music data to the portable recording and reproducing device 70 from the music server 50. Moving the compression music data currently recorded on movement to an opposite direction i.e. HDD106 of the portable recording and reproducing device 70 to HDD10 of the music server 50 can also be performed according to the same processing as the flow chart shown in drawing 9.

[0112] By moving again the compression music data which moved to the portable recording and reproducing device 70 from the music server 50 to the music server 50 from the portable recording and reproducing device 70 at this time. In the music server 50 the reproduction inhibit flag of the compression music data moved from the device 70 among two or more compression music data memorized by HDD10 is canceled. Namely the compression music data which has become the moved material can be again reproduced now in the music server 50 by canceling a reproduction inhibit flag. Under the present circumstance the moved compression music data which was memorized by HDD106 of the device 70 is deleted in the management data of the compression music data which eliminated the data itself from HDD106 or was moved from the management table of HDD106.

[0113] In one gestalt of this operation the user can create the program list which is a list which chose suitably the music data currently recorded on HDD10 of the music server 50. In the music server 50 the edit display which performs creation and edit of a program list is displayed on the indicator 53 and the user can perform edit of the existing program list and creation of a new program list using this edit display. And the user can manage the recorded music data using this program list. The created program list is memorized by predetermined memory measure for example HDD10 in the music server 50. The music server 50 can have two or more program lists.

[0114] For example with a program list corresponding to liking the user can collect like CD album can be reincarnated and can enjoy the music data accumulated in HDD10 of the music server 50. [ much ] Two or more music data can be put in block to the portable recording and reproducing device 70 and it can be made to move to it from the music server 50 using this program list.

[0115] In this invention the exclusive use editing means for editing the program list used when two or more music data is put in block and it is made to move is established. Hereafter creation and edit of the program list of package movement

of this music data and a program list are explained.

[0116] Below the list of the music data accumulated in HDD10 of the music server 50 is called an accumulation list and the list of the music data transmitted to the portable recording and reproducing device 70 from the music server 50 is called a transfer list. Both these accumulation list and a transfer list are kinds of an above-mentioned program list.

[0117] Drawing 10 shows the edit display of an example of a transfer list and illustrates about a transfer list and an accumulation list. As shown in drawing 10 the transfer list edit display 310 is displayed on the indicator 53. The list area 300 and the list area 301 are displayed on the edit display 310 in window. An accumulation list is displayed on the list area 300 and the music data accumulated in the music server 50 is displayed in a list on it. The transfer list which is an editing object is displayed on the list area 301 and the music data to which it is going to move the portable recording and reproducing device 70 from the music server 50 is displayed in a list on it. If the display of music data displays the title information corresponding to music data at this time recognition is easy for a user.

[0118] The triangular buttons 302 and 303 which turned to the opposite direction mutually are buttons for editing the transfer list displayed on the list area 301. The button 302 is a button for adding music data selected among the accumulation lists displayed on the list area 300 to the transfer list of the list area 301. The button 303 is a button for deleting music data selected among the transfer lists displayed on the list area 301 from a transfer list.

[0119] The music server 50 can have several different program lists. When two or more transfer lists exist as an example is shown in drawing 10 for example The tabs 304A 304B and 304C are displayed on the upper part of the list area 301 and the transfer list displayed in the list area 301 can be changed by choosing and specifying these tabs 304A 304B and 304C. Although a graphic display is omitted it is good to display ID mentioned later on the prescribed position in the list area 301 in this case.

[0120] Various operations in the edit display 310 are performed in the alter operation part 1 (refer to drawing 2). The display according to predetermined operation of the alter operation part 1 is made by the indicator 53. Looking at the display of the indicator 53 for example the user was provided in the alter operation part 1 he performs specification of the prescribed position on the edit display 310 and command input using a jog dial the operation key of a push type various switches etc. The signal according to the various operations made to this alter operation part 1 is supplied to CPU8 via Buss 40.

[0121] Although above-mentioned drawing 1 explains that the alter operation part 1 is directly formed in the main part 51 of a music server this is not limited to this example. For example as an example is shown in drawing 11 external input final controlling element 1' connected with the server main part 51 with a cable can also be provided. External input final controlling element 1' is indirectly connected via a direct or predetermined interface to the bus 40 of the server main part 51. The various handlers for transfer list edit by the edit display 310 the transfer

button which directs the transmission of music data based on the transfer list from the music server 50 to the portable recording and reproducing device 70 etc. are provided in external input final controlling element 1'.

[0122] In the example of drawing 11 the applied part 311 for equipping the server main part 51 with the portable recording and reproducing device 70 is formed. The interface 34 is formed in the applied part 311. By equipping the applied part 311 with the portable recording and reproducing device 70 it is electrically connected and communication of the interface 34 and the interface 35 of the portable recording and reproducing device 70 between the portable recording and reproducing device 70 and the music server 50 is enabled. It comes to be able to perform transmission of the music data to the portable recording and reproducing device 70 from the music server 50 thereby.

[0123] Drawing 12 shows the controlling method of an example of a program list notionally. A program list is stored in a program file. A program file is stored in the predetermined region of HDD10 of the music server 50 for example and all the program lists that the music server 50 has are stored. The program file has structure as shown in drawing 12 A notionally and the program list of each other is identified by ID.

[0124] having ID also with the portable recording and reproducing device 70 peculiar to each on the other hand -- the portable recording and reproducing device 70 -- it is identifiable in each individual. This ID is beforehand memorized by ROM104 in the example of drawing 5 for example. A program list applicable only to the specific portable recording and reproducing device 70 by associating ID of the program list stored in the music server 50 and ID of the portable recording and reproducing device 70 can be created. For example the same ID as ID which the corresponding portable recording and reproducing device 70 has is used for ID of a program list.

[0125] ID=300 is assigned in the example of drawing 12 by the program list corresponding to a certain portable recording and reproducing device 70. That is movement of music data based on the program list specified by this ID=300 is performed only to the portable recording and reproducing device 70 which has corresponding ID.

[0126] Using different ID (for example ID=301) can define the program list corresponding to the portable recording and reproducing device 70 which has different ID. The music server 50 can have a program list corresponding to two or more portable recording and reproducing devices 70 by identifying by ID respectively.

[0127] The kind of the program list can be identified by ID of a program list.

[0128] When editing a program list in the edit display 310 mentioned above the program list which serves as an editing object by ID is specified and the specified program list is read from a program file. The read program list is stored in the predetermined region of RAM5 with ID for example (drawing 12 B). CPU8 performs display control of the transfer list to the list area 301 of the edit display 310 with the program list stored in RAM5. A user performs edit of a transfer list for

example the addition of music data to a transfer list or deletion of the music data from a transfer list based on the display of this edit display 310. The program list stored in RAM5 is updated according to an edit result.

[0129] Transmission of the music data to the portable recording and reproducing device 70 is performed using the edited program list from the actual music server 50. Therefore the editing work of the program list used for transmission of music data cannot be concerned with whether the portable recording and reproducing device 70 is equipped with or connected to the music server 50 but can be performed.

[0130] Drawing 13 is a flow chart of an example of processing of the transmission of music data based on the transfer list into which the transfer list was edited and edited. First edit of a transfer list is started at the first step S50. For example the list edit button which directs edit of a transfer list to the music server 50 is provided in alter operation part 1'. The list maintenance portion recorded in HDD10 is searched with this list edit button being pushed by the user.

[0131] For example a list maintenance portion is provided in the predetermined region of the head of a program file and the information about a program list is recorded. The information written to the list maintenance portion is read by CPU8 and the address of the transfer list data in HDD10 decided beforehand is acquired. And the transfer list written to the acquired address is taken out by CPU8 and the indicative data based on the taken-out transfer list is generated. An indicative data is supplied to LCD26 via LCD driver 25 from CPU8 and the display of the transfer list to the indicator 53 is performed.

[0132] Thus the edit display 310 shown in above-mentioned drawing 10 is displayed on the indicator 53 and will be in the state where a transfer list can be edited. ID of the portable recording and reproducing device 70 which serves as the destination of music data in the case of these directions is inputted. This is made by choosing and specifying a desired thing from the tabs 304A-304C of the edit display 310 (refer to drawing 10) for example. Here ID=300 should be inputted.

[0133] The program list which is ID=300 is searched with the following step S51 from the program file stored in HDD10. If the program list which is ID=300 does not exist as a result of search (Step S52) processing shifts to Step S53 and the new program list which is ID=300 is created in the program file of for example HDD10. If a new program list is created processing will shift to Step S54. On the other hand when the program list which is ID=300 exists processing shifts to Step S54 as it is.

[0134] It is opened at Step S54 by the program list which is ID=300. That is with reference to above-mentioned drawing 12 the program list which is ID=300 within the program file on HDD10 is read. The read program list is stored in RAM5 and read into CPU8. If a program list is read into CPU8 the edit display 310 shown in drawing 10 to the indicator 53 by control of CPU8 will be expressed as the following step S55. A user comes to be able to do edit of a transfer list by the edit display 310 being displayed.

[0135] In the edit display 310 the program list opened at the above-mentioned step

S54 is displayed on the list area 301. When there is no data contained in a program list like [ in case a program list is created newly ]let the list area 301 (transfer list) be a blank. On the other handthe music data accumulated in HDD10 is displayed on the list area 300 by list (accumulation list). Based on predetermined conditionsit searches to the whole tone easy data stored not only in this but in HDD10and may be made to display the list narrowed down by search results.

[0136]As mentioned aboveusing the buttons 302 and 303 suitablya user exchanges music data between the list area 300 and the list area 301and deletes the addition of music data to a transfer listand the music data from a transfer list.

[0137]After the editing work of the transfer list by a user is completedprocessing shifts to Step S56 and the transmission of music data based on the transfer list from the music server 50 to the portable recording and reproducing device 70 is directed. For examplethe transfer button which directs transmission of music data to the music server 50 is provided in alter operation part 1'. This transfer button is pushed by the user and transmission of music data is directed.

[0138]In the following step S57it is judged whether it is actually equipped with the portable recording and reproducing device 70 to the music server 50. If not equippedthe warning which notifies that will be taken out with Step S58processing will be again returned to Step S57and wearing of the portable recording and reproducing device 70 will stand by. On the other handif wearing of the portable recording and reproducing device 70 to the music server 50 is checked at Step S57processing will shift to Step S59.

[0139]Various methods can be considered in order to judge whether the music server 50 is equipped with the portable recording and reproducing device 70. The method of the example is explained. It detects in hardware that the music server 50 was equipped with the portable recording and reproducing device 70for examplehas a detection means of a microswitch. If the music server 50 is equipped with the portable recording and reproducing device 70by this detection meansit will be detected that and will change into the 'H' state in the portable recording and reproducing device 70the predetermined pinfor exampleNo. 3 pinof the interface 35.

[0140]The pin by which the interface 34 corresponds is connected to the interruption terminal of CPU8 in the music server 50 side. If the state of the No. 3 pin of the interface 34 is set to 'H'interruption will be generated to CPU8. CPU8 changes the value of a predetermined register into the 'H' state by this interruption. In the above-mentioned step S57the value of an above-mentioned predetermined register is detected by CPU8and if the value is 'H'it will be judged that predetermined is equipped with the portable recording and reproducing device 70.

[0141]It returns to the flow chart of drawing 13and if it is judged that the music server 50 is equipped with the portable recording and reproducing device 70 at Step S57processing will shift to Step S59. In Step S59the check of ID of the portable recording and reproducing device 70 with which it was equipped is madeand it is judged whether it is the value (ID=300) which ID inputted at the

above-mentioned step S50. The check of ID is made by for example reading ID memorized by CPU8 of the music server 50 via the interfaces 34 and 35 ROM104 of the portable recording and reproducing device 70.

[0142] If ID of the portable recording and reproducing device 70 with which it was equipped differs from ID inputted at the above-mentioned step S50 processing will shift to Step S58 and the warning which notifies that will be taken out. On the other hand if ID of the portable recording and reproducing device 70 with which it was equipped is in agreement with ID inputted at Step S50 processing will shift to Step S60.

[0143] In Step S60 music data is moved to the portable recording and reproducing device 70 from the music server 50 based on the transfer list edited at the above-mentioned step S55. At this time both the transfer lists in which the music data moved to the portable recording and reproducing device 70 from the music server 50 was looked through can also be transmitted.

[0144] Thus in this invention a peculiar transfer list is created every portable recording and reproducing device 70. The package transmission of music data to the portable recording and reproducing device 70 is made using a transfer list peculiar to this portable recording and reproducing device 70. After a transfer list is held by the music server 50 side and wearing to the music server 50 of the portable recording and reproducing device 70 is detected transmission of the music data based on a transfer list is performed. Therefore a transfer list can be edited even if the music server 50 is not equipped with the portable recording and reproducing device 70.

[0145] Here the case where the music data before moved to HDD106 of the portable recording and reproducing device 70 from the music server 50 is still memorized is considered. As mentioned above in one gestalt of this operation the music data moved to the portable recording and reproducing device 70 from the music server 50 If it is not again returned from the portable recording and reproducing device 70 to the music server 50 it changes the music data into the state [ that it is unreproducible by the music server 50 side ].

[0146] At this time the music data memorized by HDD106 of the portable recording and reproducing device 70 for example If it will be overwritten with the music data transmitted from the music server 50 or former music data is eliminated when memorizing the transmitted music data to the portable recording and reproducing device 70 It will become impossible to reproduce the music data transmitted from the music server 50 from the first on the music server 50.

[0147] Then the list of the music data memorized by the portable recording and reproducing device 70 is acquired by the music server 50 side and it is made to compare this list and transfer list in the case of transmission of the music data using the transfer list from the music server 50 to the portable recording and reproducing device 70. And it is investigated whether in the music data in the list of portable recording and reproducing device 70 sides if there is different data from the music data in a transfer list the data is already returned to the music server 50. If the data is not returned to the music server 50 a command is taken out from the

music server 50 to the portable recording and reproducing device 70 so that the data concerned may be returned to HDD10 of the music server 50 from HDD106 of the portable recording and reproducing device 70.

[0148]If there is music data which is common with the list of portable recording and reproducing device 70 sides and a transfer listtransmission of the data can be omitted and the time which transmission processing takes can be shortened.

[0149]The list of portable recording and reproducing device 70 sides can be obtained from the music server 50 by giving a command of list acquisition via the interfaces 34 and 35 to CPU105 of the portable recording and reproducing device 70for example. CPU105 creates the list of the music data in HDD106 based on this commandand supplies the created list to the music server 50 via the interfaces 35 and 34. The last transfer list is saved in the case of the transfer list creation not only this but above-mentionedand it may be made to compare the created transfer list with the last transfer list.

[0150]In \*\*\*\*although the destination of the music data from the music server 50 was used as the portable recording and reproducing device 70this is not limited to this example. For examplethe destination of music data is good also as the magneto-optical disc whose diameter is abbreviated 64mmor an optical disc. For examplethe drive device in which record and/or playback are possible is formed in the magneto-optical disc or optical disc in which this diameter is abbreviated 64mm at the music server 50. According to thiseven if a drive device is not equipped with the magneto-optical disc or optical disc whose diameter is abbreviated 64mmthe music data transmitted beforehand can be chosen. When the magneto-optical disc or optical disc whose diameter is abbreviated 64mm is the destinationthe check of above-mentioned ID can also be omitted.

[0151]Although it explained that the music data recorded on HDD10 or HDD106 (HDD106a) carried out compression encoding by \*\*\*\*using ATRAC as a compression encoding systemthis is not limited to this example. For examplea compression encoding system which is called MP3 and which is called MPEGAudio Layer III (Moving Picture Experts Group Audio Layer III) is also applicable to this invention.

[0152]

[Effect of the Invention]As explained aboveaccording to this inventionit is effective in the ability to perform transmission of the music data from a music server to a portable recording and reproducing device in package using a transfer list.

[0153]After a transfer list is held by the music server side and wearing to the music server of a portable recording and reproducing device is detectedtransmission of the music data based on a transfer list is performed. Thereforeeven if a music server is not equipped with the portable recording and reproducing deviceit is effective in the ability to edit a transfer list.

[0154]Since a transfer list is edited by the transfer list edit displayit is effective in a user not understanding the purpose of the present list edit anymoreand getting confused being lost.

[0155]The program list used further again when moving music data to a portable recording and reproducing device from a music serverSince it is limited to the transfer listit is effective in not using carelessly for package movement of music data more the program list created for arrangement of the music data accumulatedfor example in the music server.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1]It is an approximate line figure showing roughly the system using the music server and music server by this invention.

[Drawing 2]It is a block diagram showing an example of the composition of a music server.

[Drawing 3]It is a figure showing roughly a signal flow until the music data read with the CD-ROM drive is recorded on a hard disk drive.

[Drawing 4]It is a figure showing roughly a signal flow until the compression music data read from the hard disk drive is regenerated and it is drawn by the terminal.

[Drawing 5]It is a block diagram showing an example of the composition of a portable recording and reproducing device.

[Drawing 6]It is a block diagram showing other examples of a portable recording and reproducing device.

[Drawing 7]It is a flow chart of an example of the processing at the time of recording the music data of CD on a hard disk drive in a music server.

[Drawing 8]It is a flow chart which shows an example of the accounting at the time of carrying out speed recording of the music data of CD to a hard disk drive.

[Drawing 9]It is a flow chart of an example of processing of movement of the music data concerning this invention.

[Drawing 10]It is an approximate line figure showing the edit display of an example of a transfer list.

[Drawing 11]It is an approximate line figure showing other examples of the appearance of a music server.

[Drawing 12]It is an approximate line figure showing the controlling method of an example of a program list notionally.

[Drawing 13]It is a flow chart of an example of processing of the transmission of music data based on the transfer list into which the transfer list was edited and edited.

[Description of Notations]

1 ... An alter operation part  
8 ... CPU  
9 ... CD-ROM drive  
10 ... A hard disk drive  
11 ... DRAM  
12 ... Compression encoder  
19 ... A communication line  
20 ... A modem  
21 ... Compression decoder  
26 ... LCD  
3435 ... An interface  
40 ... Bus  
50 ... A music server  
55 ... CD  
60 ... Internet server  
70 ... A portable recording and reproducing device  
106 ... A hard disk drive or flash plate RAM  
107 ... DRAM  
108 ... A compression encoder  
115 ... Compression decoder  
120 [ ... A list area  
301 / ... A list



area302303 / ... A button304A304B304C / ... A tab310 / ... A transfer list edit  
display311 / ... Applied part ] ... LCD130 ... A bus200 ... A switching circuit300

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